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ABSTRACT

This unit consists of activities designed to develop value systems related to the interactions of humans and their environment. The overall objectives are to teach students to evaluate their actions within an environmental context, make rational decisions in resolving environmental problems, and function in a democratic society by reaching consensus on environmental issues. Activities focus on: (1) reading the essay, "Ethics of a Savage," which sets the terms of an environmental ethic; (2) problems with wood burning stoves; (3) environmental decision-making (a values auction activity addressing various environmental issues); (4) comparing societies; (5) United States energy sources; (6) making choices in our society; (7) energy consumption; (8) life styles and the future; (9) evolution of ethics; and (10) constructing a life plan. The unit is designed for use as homework or for individual assignments. (JN)

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Teaching About Ethics and the Environment

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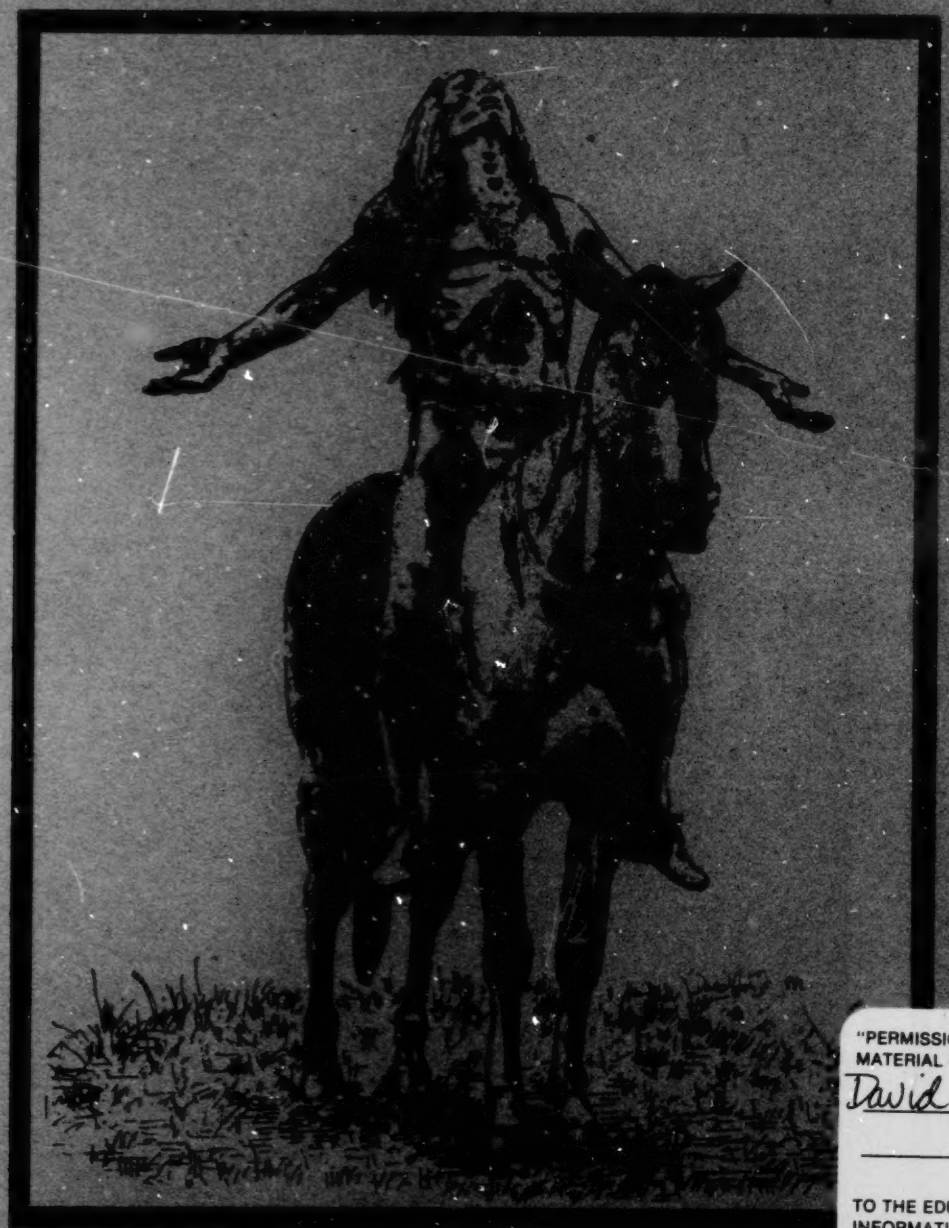

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The School Board of Brevard County
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Teaching About

ETHICS AND THE ENVIRONMENT

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If it ain't broke don't fix it!

–Traditional American Adage

But what if it's broke?

"I know of no safe depository of the ultimate powers of the society but the people themselves..." Thomas Jefferson,1820

INTRODUCTION

Florida's curriculum is bulging with frameworks, minimum performance standards, standards of excellence and grade objectives. Why teach about ethics and the environment? Education fails if students do not develop positive values and attitudes related to environmental, economic and social issues. Values are central to the evolution of a sustainable society not only because they influence behavior but also because they determine a society's priorities and thus its ability to survive. Teachers can help by providing students with a balanced set of experiences that helps them develop the ability to choose.

These instructional materials aim to develop value systems related to the interactions of humans and their environment. Their application leads to decisions that purify, improve and maintain natural and human ecosystems. The overall objectives are to teach students to:

1. Evaluate their actions within an environmental context.
2. Make rational decisions in resolving environmental problems.
3. Function in a democratic society by reaching consensus on environmental issues.

The units are designed so teachers can use them as homework or individual assignments. Students that were exposed to the materials during field testing were very positive. Try them with one class and see their response!

ETHICS OF A SAVAGE

Dear Teacher:

1. Have students read Ethics of a Savage. Underline important ideas and concepts.

2. Allow students time to write answers to the questions. Allow 20 minutes to discuss their answers.

3. Have students list ways they waste resources

    a. at school

    b. at home

    c. in their community

    List these student responses on the chalkboard.

4. Allow students time to identify ways in which changes in their wasteful ways would not necessarily change their lifestyle.

5. Enjoy using this unit; students will refer to it all year!

ETHICS OF A SAVAGE

In 1854 President Franklin Pierce dispatched a delegation to the newly acquired Northwest Territory. Great Britain had ceded the vast, rich land eight years earlier. California statehood was four years old. Only a year before in 1853, the Gladstone Purchase had brought the Rio Grande Valley into the new state of Texas. The United States of America thus acquired its present continental borders.

Much territory within the magnificent continent, however, was not yet Americanized. Pierce's delegation to the Pacific Coast was to participate in that Americanization process. Their mission was to purchase Indian tribal lands stretching south and east from Puget Sound. It was a land of cloud forests, home of Mount Rainier, Mount Olympus and Mount St. Helen; a land of rivers, islands and forested valleys reaching south to the Columbia Gorge and east to the Selkirk Mountains. Thirty-five years later, all this land would become the state of Washington.

Members of the delegation viewed the Indian Territory around Puget Sound with admiration and relief. They had traveled by stagecoach, on horse, by boat and on foot. When some returned to plan for statehood some years later, they would travel by train. The cities of white men would be rising where Indian villages now stood.

While the Pacific Territory had been claimed by Great Britain and ceded to the United States, it did yet not belong to either.

Chief Seattle welcomed the white men to his council fire. He gave them seats of honor. The best pipe, with eagle feathers attached, was passed from one to another. The smoke signified the honest intent of all at the council. The delegation included an Indian guide fluent in the dialects of the area and a white scribe who wrote down all that was said by whites and Indians.

The proposal from the White Chief, the Indians declared, was not welcome. The white man's desire to own their land did not make sense. It would only bring misfortune. They said the land was not like a bracelet, an axe, or a gun. It was a living thing with a spirit of its own. They were part of that spirit, as their ancestors had been. If they were only caretakers of the land for a generation, how could they sell it?

The pipe was passed again. Chief Seattle smoked silently. He leaned forward to breathe new life into the embers of the fire. A young Indian added more wood sending sparks darting into the night. The chief began slowly to speak. He acknowledged that they no longer had means to resist the power of the whites. If the choice were truly theirs, they would not sell. They knew they had no choice. They could only hope that

the White Chief would listen to the spirit of the land; that the whites would learn to live in harmony with that spirit.

Chief Seattle slowly got to his feet. Light from the fresh flames flickered across his face. He was prepared to make his oration. Among his people, he was a spiritual leader and a prophet. As such, he was known among the tribes of the northwest as a speaker of the truth, a great orator. What follows is a portion of what he said to President Pierce's delegation in 1854:

"We know that the white man does not understand our ways. One portion of land is the same to him as the next, for he is a stranger who comes in the night and takes from the land whatever he needs. The earth is not his brother, but his enemy, and when he has conquered it, he moves on. He leaves his fathers' graves behind, and he does not care. He kidnaps the earth from his children. He does not care. His fathers' graves and his children's birthright are forgotten. He treats his mother, the earth, and his brother, the sky, as things to be bought, plundered, sold like sheep or bright beads. His appetite will devour the earth and leave behind only a desert.

"I do not know. Our ways are different from your ways. The sight of your cities pains the eyes of the red man. But perhps it is because the red man is a savage and does not understand.

"The air is precious to the red man for all things share the same breath - the beast, the tree, the man, they all share the same breath. The white man does not seem to notice the air he breathes. Like a man dying for many days, he is numb to the stench. But if we sell you our land, you must remember that the air is precious to us, that the air shares its spirit with all the life it supports. The wind that gave our grandfather his first breath also receives his last sigh. And the wind must also give our children the spirit of life.

"You must teach your children that the ground beneath their feet is the ashes of our grandfathers. So they will respect the land, tell your children that the earth is rich with the lives of our kin. Teach your children what we have taught our children, that the earth is our mother. If men spit upon the ground, they spit upon themselves.

"This we know. The earth does not belong to man; man belongs to the earth. This we know. All things are connected like the blood which unites one family. All things are connected.

"Whatever befalls the earth befalls the sons of the earth. Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web, he does to himself.

"Even the white man, whose God walks and talks to him as friend to friend, cannot be exempt from the common destiny.

"We may be brothers after all; we shall see. One thing we know, which the white man may one day discover - our God is the same God. You may think now that you own Him as you wish to own our land, but you cannot. He is the God of man and His compassion is equal for the red man and the white. This earth is precious to Him and to harm the earth is to heap contempt on its Creator. The whites too shall pass; perhaps sooner than all other tribes. Continue to contaminate your bed, and you will one night suffocate in your own waste."

Today, looking back on planet earth from outer space, we can ask, "Did Chief Seattle speak the truth?" We have scientific technology with which to measure the accuracy of his prophecy. How well did this red man, who called himself a savage, understand the danger our lifestyle and our values would hold for the earth, which he called our mother?

The tao, the way of Chief Seattle is the same way nuclear physicist Fritjof Capra now urges us to follow. It is the same way given to us by religious mystics for thousands of years.

There is a flow and a unity in that relationship that defies scientific classification. All measurements are described in physics today as relative. Certainty is replaced by Heisenberg's Uncertainty Principle. In the most sophisticated scientific experiments, time seems under certain conditions to reverse itself. The observer cannot be separated from the observed.

If any certainties remain, they are the eternal truths described by Chief Seattle, and these are now being confirmed by a new, more humble breed of physicists. All creation is alive. The living earth cannot be owned by any one species, not even humans. We are one strand in the web of life. When we harm the web, we harm ourselves.

We have created a society built on a fundamental error. That error is the belief that the earth is no more than a machine. The function of that machine in society today is to serve us. We have created our man-made economy as a means to exploit the earth, to tighten our control over the machine.

This artificial economy whets our appetites for more plunder. It makes of us strangers in our own land. Under its influence, we are devouring the earth, and we are leaving behind a desert.

The new world view of science sees the artificial economy as we now practice it as incompatible with the real economy of nature. It sees spiritual values as pointing the direction we must follow.

For most of human history, our economic practices had little effect on nature's economy. On our 100-million-year graph, the

earth continued to enrich itself well into the 19th Century. Yet, the relationship between humans and nature had been determined from our childhood by "science" and technology. Our first science was the science of magic. Its goal was to use words of magic and ritual to influence nature to do our bidding. Our first technology was a stick. Used as a lever, a stout stick could pry loose boulders many times larger than we could move by hand.

The lever became an axe, an oar, a mast, a wheel, a jet engine, a computer, a nuclear reactor, a satellite, a rocket to the moon. It brought promise of a better, more human life and an end to unreasoned fear. It also brought the potential to end all human life and new reasons for fear.

We date our graph of nature's economy from 1854, but the exact end of human adolescence is not so precise. The year of Chief Seattle's prophecy and the coming together of our nation as a geographic whole provide a convenient dividing point. Sometime between then and now the price of human science and technology began to exceed what the planet could bear.

For eons, our ancestors lived on earth's income. Local civilizations rose as they learned to work within the bounds of nature's economy. They fell when they exceeded the natural income available in the areas they occupied. Nature's great capital reserves remained largely untouched. With the Industrial Revolution, we began to tap the savings accounts of fossil fuels - first coal, then petroleum and gas.

The machine age of science, fed by stored energy of yesterday's countless suns, gave humans our most potent magic. It dwarfed the planet. With ever more powerful machines, our magical power to consume outstripped the earth's capacity to produce. On our graph, earth's capital reserves plummeted. Between 1854 and now we have consumed, or soon will, more than 100 million years of the earth's productivity. The change did not come in a gentle downward curve. On a 100-foot string graph the plunge is abrupt. The 100 million years of the earth's reserves are wiped out in less than 1/600th of an inch.

We are wiping out not just the stored sunshine of fossil fuels. In the biosphere, we are laying waste to entire ecosystems. Life forms that literally laid the foundation for human existence are being destroyed. In the microbiotic sphere, we are undermining the fertility of our soil. The refuse of our binge of consumption finds its way into the deepest ocean trenches and high into the stratosphere. Increasingly, invisible streams of radioactivity seep into the pores of the living earth. As contamination spreads, people have begun to suffocate in our mountains of waste.

Thus the infancy, the childhood and the adolescence of the human species ends. Our childish economy designed to whet our appetite to consume, to deplete and to poison, is not compatible

with an earth that lives. The message from scientists, from the planet itself is clear. There was a purpose in the long "growing up" of life on earth. The prodigious productivity, the billions of years of enrichment, the accumulation of the energy of yesterday's suns, were all aimed at this moment in time.

On our consciousness rides the fate of creation's investment in the human enterprise. That enterprise began when the hard-wiring was cut on our species. By trial and error we have exercised that gift of freedom. Like curious children we have tasted and experimented, burned fingers, bumped heads, and reveled at the beauty and mystery of it all.

To become managers of nature's economy, we must put away our childish values. As stewards, we must live on earth's income. Rather than consume its resources, we must invest them in ways to increase earth's savings. We must create lifestyles that no longer diminish the earth and leave it less able to support life.

In economic terms, we must get off the welfare rolls of our planet. If "welfare" means living on the earnings of others, we in the United States are more dependent on welfare than any other nation in the world. We live almost entirely on the savings accounts accumulated by other species. As "dependent children," we are driving nature's economy bankrupt twice as fast as other industrialized nations.

Scientists using U.S. Government reports calculate that to support the average American requires each year the equivalent of 96,980 kilowatt hours of energy. This includes our personal use plus a share of energy used by industry, commerce, agriculture, transportation and government. Our average is about twice the amount required to support German, Dutch and Swedish citizens. Our lifestyle requires three times as much energy as that of the average Japanese, Israeli or Swiss citizen.

While estimates vary, our consumption is about four times the amount available from the earth's energy income. If we wisely invested the earth's resources in sustained technology, this income could be increased. According to many scientists, the prospect could be bright for humanity. Used efficiently and fairly, existing renewable income could support a living standard qualitatively higher for all earth's citizens.

Most of us do not believe this, and that makes the transition more difficult. According to R. Buckminster Fuller, as long as we believe there is not enough in nature to go around we will not grow up as a species. The prerequisite to maturity is to let go of selfishness.

Learning to let go is essential to what Fuller describes as the transformation of our planet. It is, he says, "the final exam which will determine whether the human species qualifies to

continue on earth."

Following are the views of three other distinguished scientists.

ECOLOGIST IAN McHARG -- McHarg would say that we are not engaged in a final exam. Rather, we are in the final stages of a deadly mutation. Chief Seattle was correct. We are devouring the earth and leaving a desert. By any honest assessment, McHarg contends, the human species has become a cancer. As one cell among many on a living planet, we are growing out of control. We are consuming our host. We will destroy the earth and ourselves with it.

ANTHROPOLOGIST JACOB BRONOWSKI -- Bronowski would say both Fuller and McHarg are partially correct. The human species is in a mutant stage. It is too early to tell if the mutation is cancer or not. It might be the beginning of transformation. A higher order, a more conscious human being will be required. According to Bronowski, the mutation which is now underway is irreversible. Its significance could be as awesome, he says, as "when life came out of water onto dry land."

ASTRONOMER CARL SAGAN -- Sagan would say that such a transformation on earth would have meaning far beyond our planet, even our galaxy. Mathematically, he believes it a certainty that intelligent life has evolved in many places in the universe. It is a mystery why, with present technology, we have been unable to detect the presence of other civilizations in outer space. Sagan suggests one possible solution to the mystery. Every intelligent life is certain to develop its own technology. Once technology has begun, a civiliztion will, in time, possess the power to destroy itself. The question is, would all civilizations use this power to self-destruct once they possessed it. Sagan believes they would - unless they evolved a higher ethic than selfishness to guide their decisions.

The question for our generation is whether or not we will choose such an ethic. Survival of civilization on earth is at stake.

Questions for "Ethics of a Savage"

1. How did the Indians view land management compared to modern views?

2. Why was there a feeling of hopelessness among the Indians?

3. What is the author's intent by using the word savage in the title?

4. Define the word tao.

5. How does the mystic view the world of science compared to the modern scientist?

6. In terms of "stewardship," what is the significance of the year 1854?

7. Why is the fourth stroke of creation a sort of "growing up" for mankind?

8. What did the author mean by the "welfare rolls" of this planet? Why is the U.S. most dependent on these "rolls?"

9. Describe why you think "stewardship" may or may not be a practical method of earth management.

THE PROBLEM WITH WOOD BURNING STOVES

Dear Teacher:

Our students need to understand that environmental problems are real problems. Start collecting pertinent, current newspaper and magazine articles. They should be discussed in class while the issue is still fresh. After the students gain an awareness that these are real, serious, and personal problems, they should be ready to tackle their own environmental problems.

I have structured this unit as a group activity so that the simulation mirrors a complex social, scientific and ethical problem. Students should understand that it takes the cooperation of many community factions to solve problems. If they do not cooperate, all can suffer. Hopefully the students who work these simulations will become responsible adults, not intimidated by environmental problems.

Some Suggestions:

"The Problem with Wood Burning Stoves" is a simulation suitable for Junior High students and can be completed in two days. You will need a copy for each student. I feel you must do several discussions of current, in the news, environmental problems first, in order for this simulation to work and be valuable.

I found it useful to read the problem and the various points of view aloud before the students broke into groups. I also read the directions for the positive papers so the students would have a clear idea of what was expected of them at the outset.

Add atmosphere to each group by putting a folded sign at each meeting location. I also found it useful to have 3" x 5" labeled cards with "Mediator," "Health Department," "Homeowner," etc. I gave at least one to each student. I found the labels helped the students stay keyed to their particular viewpoints and on task. It also assisted me in evaluating student and group progress as I moved from meeting to meeting.

Stress that this class is different from most classes. There are no "right" and no "wrong" solutions. What you are looking for is good effort and good problem solving behavior.

PROBLEM WITH WOOD BURNING STOVES

In the city of Two Egg, Florida, a large percentage of the population has purchased wood-burning stoves. When the temperature is low, the wood stoves are fired up. Burning wood gives off large amounts of smoke. Because of temperature inversions in the valleys, some days the smoke sinks to the ground and builds large gray clouds covering whole neighborhoods. The people are divided as to what they should do about the problem.

Today you will form a group of people of very different backgrounds and ideas who together will serve as the city council. Your first job will be to select a council member to represent each of the different points of view listed below. Each representative will explain his view to the group and try to persuade them to agree to his ideas. By the end of the allotted time, the city council will have to come up with a decision as to how to solve the problem and will need to choose a spokesperson* to explain their decision to the rest of the class. (*Extra credit.)

1. HEALTH DEPARTMENT -- feels that the smoke is definitely a health hazard to the community. During pollution alerts the number of asthma patients has risen dramatically. Emphysema patients have more difficulty breathing and statistics show that over time, lung cancer will be increased due to the smoke. They would like the level of solid particles in the air not to exceed 500 mg per cubic liter.

2. HOMEOWNERS -- feel frustrated. Many of them took the government advice to heart when they said we need to save energy. They bought wood burning stoves so they could use their own timber and not use up the nation's supply of oil and gas. They have acreage of "free wood" and now the government wants to tell them they can't use it.

3. INDIVIDUAL RIGHTS GROUP -- feels it is the individual's right to burn wood if he wants to. The wood is free to most people and we don't feel the government should insist that we purchase expensive fuel to keep our families warm. Telling us we have to put out our wood stoves is government interfering in the private affairs of citizens and an illegal taking away of individual rights.

4. MEDIATOR -- keeps peace in the group. Tries to assist all to come to a good decision. Writes city council position paper.

If you have more than four members in your group, you will want to select one or more of the special interest groups listed below and have someone present their point of

view to the city council also. Each group member must turn in a position statement. The position statements will be stapled to the city council's final decision and turned in as part of their grade for the project.

OTHER POSSIBLE POSITIONS

State Fish and Wildlife Service
United Council of Churches
Jim's Wood Stoves - Sales and Repair
Florida Gas Company

Please remember, this is a real problem and you will be graded on how well you go about solving it!

VALUES AUCTION

Introduction: This lab activity is an excellent opportunity to introduce students to environmental decisions. Students will find the activity very enjoyable and will initiate discussion about the topics listed. The teacher will be able to use the students' comments as springboards for environmental discussions.

Materials: handout - "Values Auction"
paper, pencil, overhead/blackboard

Procedure:

1. Hand out the "Values Auction" bid sheet.

2. Read aloud the topics listed (refrain from discussion).

3. Discuss the rules of bidding:
   a. Each student starts with $5000.
   b. Bids start at $50.
   c. Each bidder can increase the bid by a maximum of $250, a minimum of $50. (Raising hands for attention is convenient and requires less name matching.)
   d. Whoever reaches $2500 is the top bidder and receives the "item."

4. Provide about 10 minutes for each student to individually prepare the bid column on the "values" sheet. This column reflects the maximum amount that can be bid for each "item." When bidding exceeds the allotted money, the student may no longer bid for that "item."

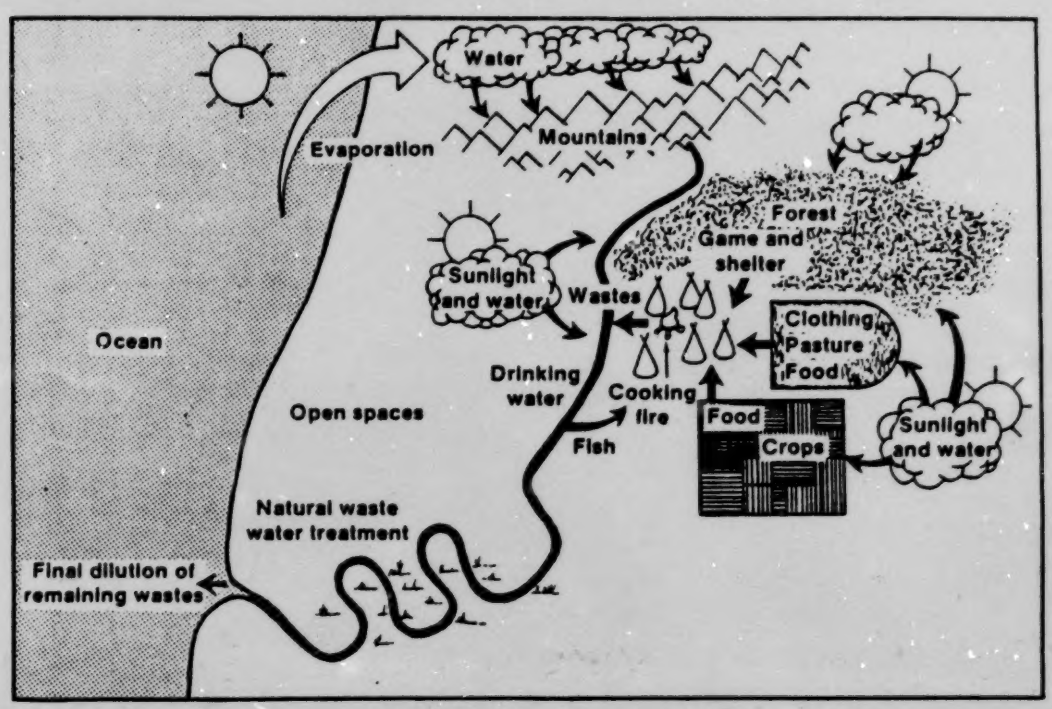
5. List high bids for each of the categories on the chalkboard.

6. Survey the final results. Appropriate discussion about high/low bids can be initiated by the teacher. In addition, a review of individual bid sheets provides good insight about specific individuals. A summary statement about values is clearly required for maximum benefit of the activity.

ENVIRONMENTAL VALUES AUCTION*

	My Bid	Top Bid
A long life free from illness	_____	_____
Love and admiration from friends	_____	_____
A happy family and personal life	_____	_____
A large fruit and vegetable garden	_____	_____
A very satisfying love relationship	_____	_____
A chance to eliminate sickness and poverty	_____	_____
Non-polluting energy	_____	_____
Preserving endangered wildlife	_____	_____
A world without prejudice	_____	_____
Understanding the meaning of life	_____	_____
Equitable distribution of wealth and power	_____	_____
A chance to stabilize world population growth	_____	_____
Equitable distribution of world resources	_____	_____

*Copy this bid sheet any way you can.



COMPARING SOCIETIES

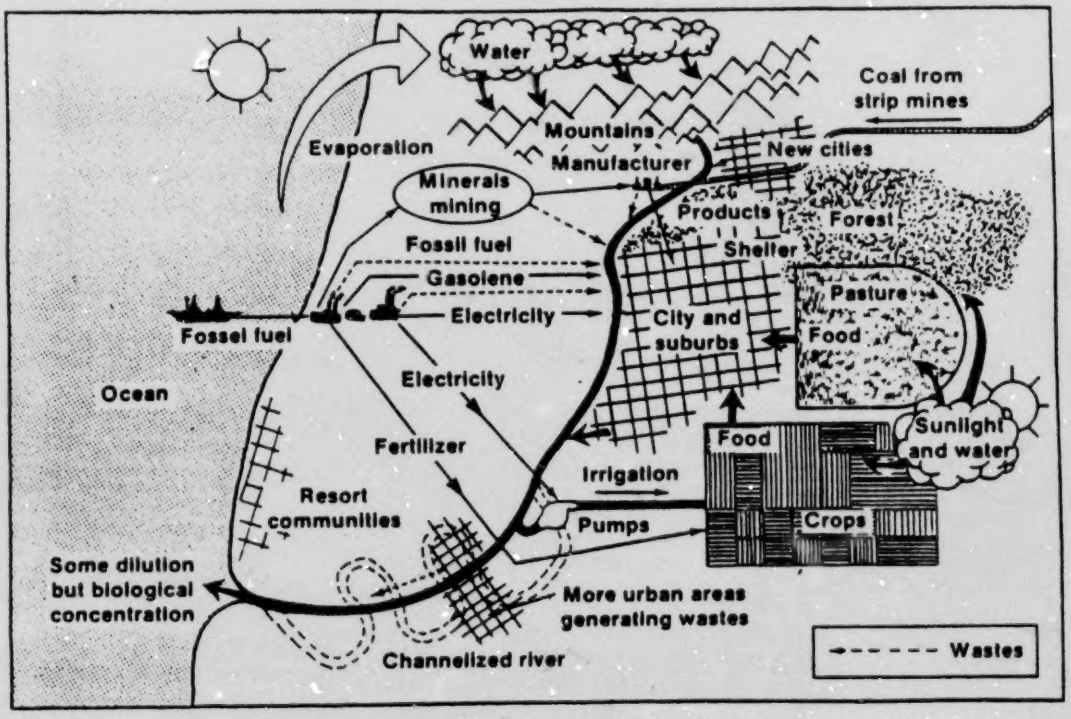
All the food, shelter, water, and waste processing systems of the village in the diagram are powered by solar energy. Ocean water is evaported by solar energy, condensed by the atmosphere, and deposited on the land as clean, fresh water. Photosynthesis converts naturally available materials into many complex molecules. These molecules are filled with solar energy and are used as food. Humans learned to take advantage of this energy in many ways. Crops were harvested, processed (by human and animal power only), and used as food. Forest products were used for food, shelter, clothing, and tools.

The stream running down from the mountains provided drinking water and fish. It was also used for washing and for the dispersal of wastes. The downstream meanderings of the stream through grassy marshes provided a very valuable filtering and purification system. The few wastes remaining after this process were greatly diluted and organically decomposed in the stream and in the ocean.

This small human ecosystem was entirely operated by solar energy. The village lived completely within its daily budget of energy from the sun.

The amount and strength of the wastes were very low. They were used by the land and water without environmental impact.

Two hundred years later the human population increased and developed powerful technological tools.



Now the size of the forest is diminished, the cultivated area is increased. Urban areas have become permanent. The amount of wastes increased, taxing the river's ability to use them. The strength of these wastes has also increased and they are affecting organisms living in and near the river.

The river is channelized. It meanders and natural filter systems were removed to increase drainage. Water-borne wastes are carried in higher concentrations among the full length of the river. These wastes are diluted upon entering the ocean, but are in the food chain.

This new society has exceeded the carrying capacity of the land. It has exceeded its daily budget of energy from the sun. It now requires massive infusions of nonrenewable energy from coal, oil, natural gas, and uranium nuclei. River channelization and drainage projects have reduced the amount of fresh water. The human population and its agriculture requires more water so extra energy must be used for pumping water onto croplands and to population centers.

Extra energy in the form of chemical fertilizer and pesticides is required to support the increased demand for food. The costs of food transportation and processing, have become so extreme that most of the energy contained in the food we eat comes from fossil fuel!

Large inputs of nonsolar energy are required for human activities like manufacturing and our transportation systems.

Huge amounts of energy are also required to process solid, liquid, and gaseous wastes.

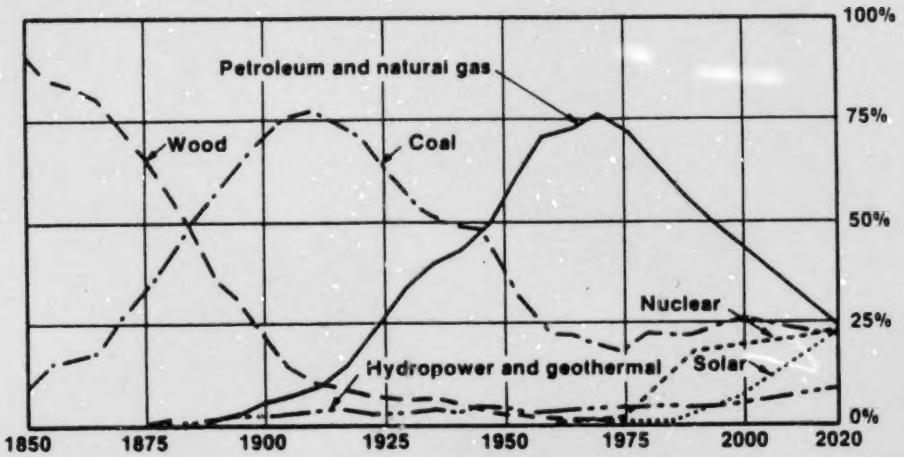
Identify some specific materials in Florida's water. You may wish to call the Florida Department of Environmental Regulation or your local public health agency.

2. Prepare a report to your class on the effects of acid rain.

3. List the sources of energy used to operate a modern city.

4. Compare the lifestyle of a person living in the "solar" village with the lifestyle of a person living in the modern city.

5. Design a modern city that operates on solar power.



U.S. energy sources

This graph shows that the energy used by our society has changed throughout history. Wood, coal and then oil and gas have been used to supply large shares of our total energy consumption. This graph projects that future energy supplies will come from a variety of sources - an energy mix.

To predict our future energy needs, we must estimate what our future supply and demand will be. Supply is the amount of energy that will be available for use. Demand is the amount of energy that people will be willing and able to buy. But to figure our supply and demand, we must consider other factors. Some of these are listed below.
Read each item below and decide whether it helps determine supply or demand. Then write the item beneath the correct heading.

- existence of resources
- ability to get resources
- size of population
- life style
- Gross National Product
- efficiency of resource use

SUPPLY

_____

_____

_____

DEMAND

_____

_____

_____

To some extent, we can control future energy supply and demand by controlling these factors. Look at them again, think about them, then answer the following questions.

1. Which factors do you think will be the easiest to change?

2. Which ones will be difficult to change?

3. Is it impossible to change some of these factors? Which ones?

Discuss your answers with the rest of the class. Is there some difference of opinion about what can be changed? About which factors are easy and which are hard to change? Why?

MAKING CHOICES IN OUR SOCIETY

Through exploration, better recovery techniques and more efficient energy use, we may increase our near-term energy supply. But it may not be enough. If there isn't enough to provide us with all the energy-based products and services we want, we will have to decide which ones are the most important. Let's find out what you think is important.

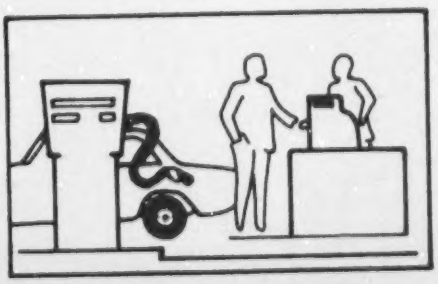
Below is a list of ten common uses for oil. Using the numbers one (1) through ten (10), rate them in the order of their importance. Give the number one (1) to the use you think is the most important, the number two (2) to the next most important, and so on. Write the number in the box beside each item in Column A.

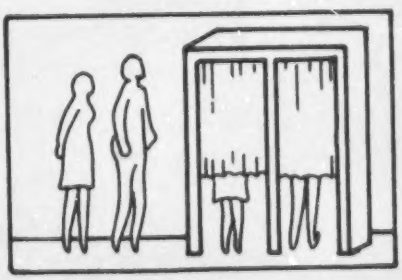
	COL. A	COL. B
o gasoline for transportation (buses, autos)		
o raw material for synthetic fabric		
o heating oil for homes and buildings		
o asphalt and oil for roads		
o raw materials for fertilizer and pesticides		
o jet fuel for airplanes		
o raw material for plastics		
o raw material for medicine		
o fuel for generating electricity		
o lubricants for engines and machines		

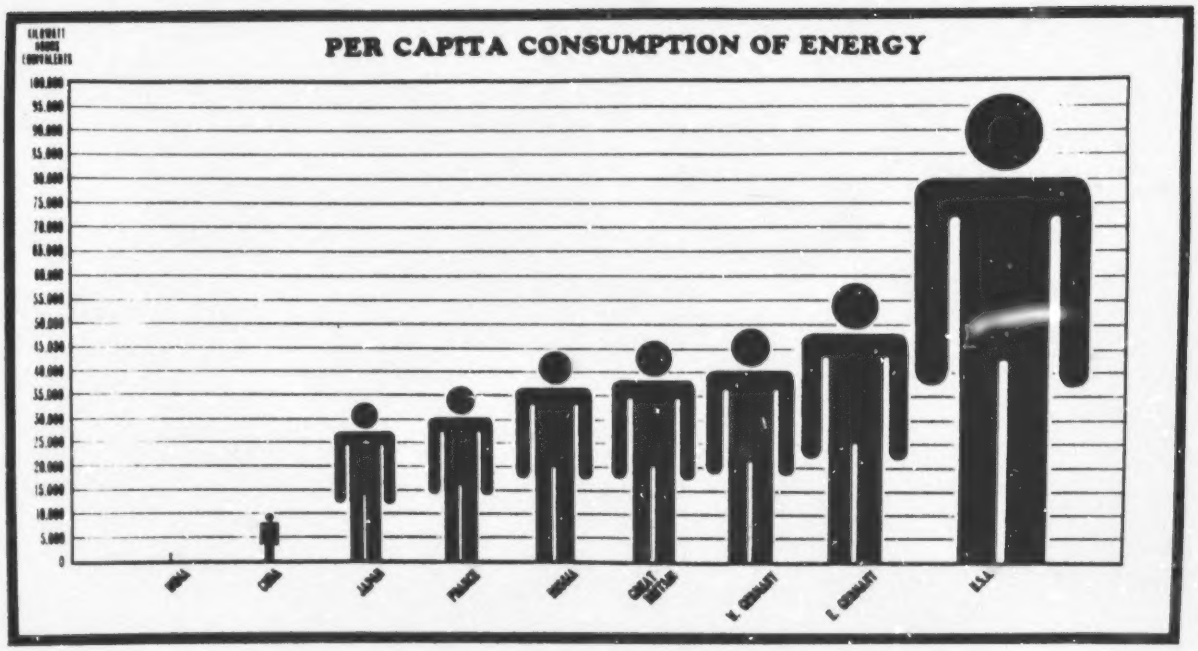
Which uses did your class as a whole think were the most important? To find out, average the score for each item this way. Taking one item at a time, record the number given it by each person in class. Add these numbers, then divide the total by the number of people in class. Write the number in the box beside each item in Column B.

That's one way of deciding just how our energy resources will be used, but it's an artificial way. In our economic and political system there are two ways that most people commonly make these choices.

On a sheet of notebook paper, explain how buying and voting help determine how we use our energy resources.







ENERGY CONSUMPTION

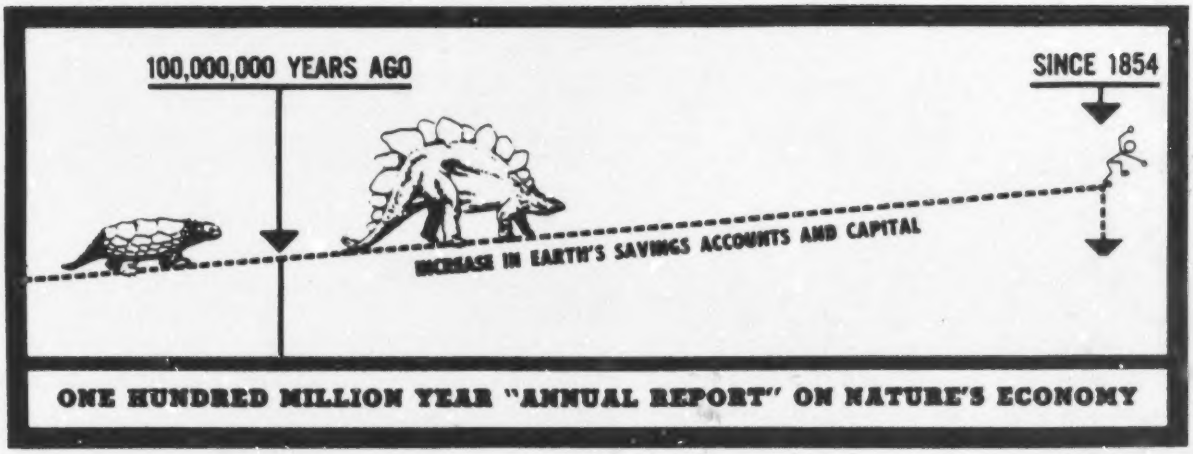
Scientists have calculated that the average American uses about 97,000 kilowatt hours of energy each year. This includes our personal use plus a share of energy used by industry, commerce, agriculture and transportation. Our average is about twice the amount used by German, Dutch and Swedish citizens. Our lifestyle requires three times as much energy as the average Japanese, Israeli or Swiss citizen.

1. For each 100 calories of food we consume, 900 calories of energy were required to produce it. Use the library to research ways in which agriculture is trying to reduce energy use. How can you modify your lifestyle to change this energy imbalance.

2. Write a letter to a student your age in India explaining why your current lifestyle requires so much energy and tell what you are doing to reduce your consumption.

3. Write an appropriate response from the view of a citizen of India.

4. Europeans enjoy a lifestyle similar to Americans. How can you account for their much lower energy consumption?


100,000,000 YEARS AGO
SINCE 1854
INCREASE IN EARTH'S SAVINGS ACCOUNTS AND CAPITAL
ONE HUNDRED MILLION YEAR "ANNUAL REPORT" ON NATURE'S ECONOMY

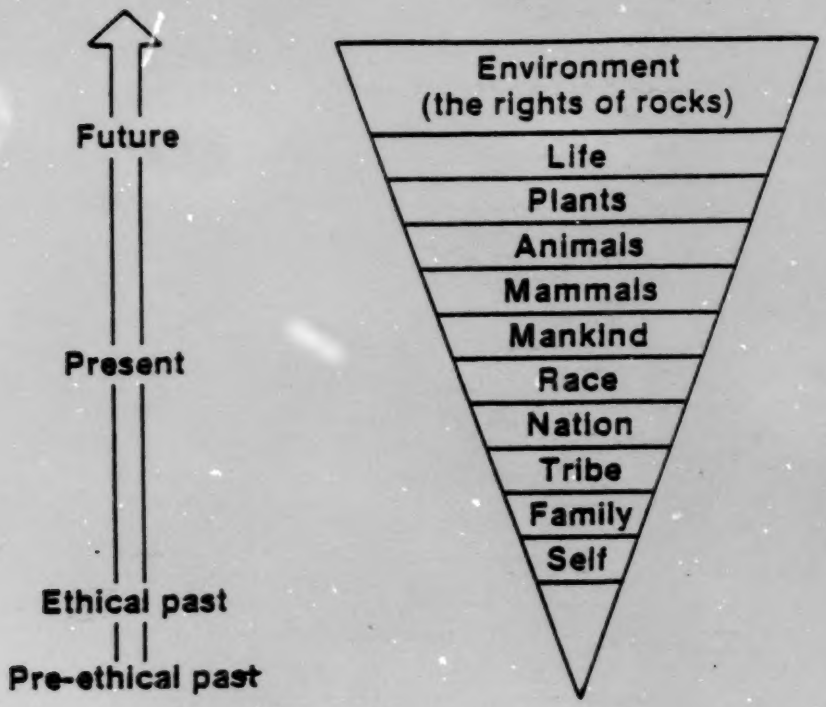
This 100-million year graph shows how the Earth enriched itself well into the 19th century. Science and technology has enabled humans to change the Earth. We no longer live in the Earth's energy income. With the Industrial Revolution, we began to tap the savings accounts of fossil fuels -- first coal, then petroleum and gas. At our current rate of consumption, the Earth's savings will be totally gone in the next 100 years.

1. Measure one hundred feet of string. Stretch it along the hall in your building. Label the area beneath the string (time graph) to show the various geologic era. The time period from Chief Seattle's speech to now is 1/60th of an inch.

2. "No one owns the Earth; we are borrowing it from our grandchildren." Write a letter to your grandchildren telling them how you are saving the Earth for them.

3. Consider your current lifestyle: food, clothing, travel, relationship with parents and peers. Imagine a lifestyle where you had to live on the Earth's income. Make a chart contrasting your current lifestyle with a lifestyle supported by the Earth's yearly budget.

Evolution of ethics



This figure shows ethics have evolved over long periods of time to include ever larger communities. The time scale shows that at some point in the past ethics did not exist. The reason is simple: life existed before an animal could think in terms of right or wrong. In the "pre-ethical past," living things reacted on a tooth and claw basis. The "ethical past" began when one life form -- man -- reached the point where his actions were right or wrong. For eons, ethics applied only to the self. Ethics then expanded to include families, tribes, nations, races and in most cultures, mankind. The diagram shows the highest level of ethical evolution to include parts of the environment not commonly regarded as alive. It includes things like air, water and soil.

1. People often develop warm, lasting attachments to mammals they keep as pets. What are some of the reasons for this attachment?

2. Snakes, insects and spiders are outside the "concern for life" of most people. Why? Are you upset if someone sprays for roaches or ants?

3. Should plants be included in the diagram? Why or why not?

4. Where do you feel you fit on the diagram? Give some examples to justify your decision.

Putting It All Together

It is time we humans take responsibility for cur freedom. We must see how our freedom can be the spark that ignites the next leap forward. We must also understnd that if we use our freedom selfishly, our children will be the ones to suffer for our carelessness.

Constructing a Life Plan is one way of getting in touch with issues and problems that are important to you. If you choose to develop a Life Plan, it will have power only if it is based on a clear understanding of the purpose and meaning of your own life.

Our present lifestyle is threatening the capacity of the Earth to support life. We are diminishing the diversity of life species on the planet. We overconsume the Earth's nonrenewable resources, and do little to recycle them. Our carelessness in the use of toxic substances has poisoned our rain, air and soil. As a result, there is a growing percentage of human diseases attributed to environmental pollutants.

By changing how you <u>see</u> the world you can change how you <u>deal with it</u>. Only then can you change yourself. Such honesty requires you to question your own assumptions. Life Planning can help give you the strength to travel your own road.

If you decide to go on, there is much you can do. No changes, without clear reason and deep desire to change, will last or even make sense. No sudden change will make you into an earth-enricher, instead of an earth-depleter. This is just a path, not the journey's end.

Getting Started on Your Life Plan

If you want to begin balancing your use of nature's economy? Are you ready to agree that during the next year:

1. You will use less energy from Earth's savings accounts than last year?____

2. You will use more energy from Earth's renewable income than last year?____

3. You will use fewer nonrenewable resources than last year?____

4. You will use more recycled resources than last year?____

Setting Goals for Your Life Plan:

Do you want your life to enrich, not reduce the earth's capacity to support life:

1. Will you assess your use of nature's economy, so that you will know approximately how much your present lifestyle is out of balance?____

2. Will you develop plans to meet more of your needs directly by your own efforts and/or in cooperation others?____

3. Will you develop goals for a year and a schedule for achieving them?____

Implementing Your Plan:

Do you want your life to count? Are you ready to agree that during the next year:

1. You will be aware of foods produced and processed by high energy consuming industries?____

2. You will read new sources of information to continue increasing your energy awareness?____

3. You will organize and conduct a school energy survey to identify energy saving opportunities and suggest methods to accomplish them?____

4. You will use your abilities to plan and evaluate your lifestyle?____

5. You will take into consideration the beliefs and rights of family and others?____

EVALUATING YOUR FUTURE

Here are some personal goals to consider. Rank these goals (4 highest, 1 lowest) in the space on the left.

A. I want to devote more time to the following activities (list specific activity):

_____1. Sports_____

_____2. Creative pursuits_____

_____3. Intellectual pursuits_____

_____4. Spiritual pursuits_____

_____5. Political pursuits_____

_____6. Social concerns_____

_____7. Environmental concerns_____

_____8. Other_____

B. My life-long goal is to achieve a lifestyle that includes the following:

_____1. Close proximity to friends who share similar goals, values and activities to my own.
_____2. A mix of generations, including community members of varied ages.
_____3. An opportunity for members of my own family to live part-time or fulltime within the same community.
_____4. An opportunity to travel and/or live parttime in communities in different geographic locations.
_____5. A binding way to provide stewardship of land, while providing for an irrevocable right for use during my lifetime.
_____6. Living in a community that has mutually agreed to demonstrate environmental responsibility.
_____7. A place where I can find privacy and quiet for meditation and study.
_____8. A place where I can garden and compost garbage.
_____9. Nearby library facilities where I can read and use audio and video tapes.
____10. A facility for group worship and study.
____11. A home that is as nearly self-sufficient as possible.
____12. A market or co-op for purchasing and/or bartering for healthy food and other necessities.
____13. A holistic health facility to assist in developing a healthy lifestyle and provide help in diagnosing and treating specific health problems.
____14. A hospital for life-threatening emergency care.
____15. A neighborhood that allows me to meet almost all needs by walking or biking.
____16. Public transportation (bus, taxi, subway, etc.) to meet all other needs, including access to interstate bus and train terminals.

Now examine your personal goals and lifestyle goals. Write a futuristic story describing how you actually achieved your goals and which ones you would change.

REFERENCES AND SUGGESTIONS FOR ACTION

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